Imagine
COMMUNICATIONS™

Users Guide

VFlash™
Flash Utility

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OVERVIEW

The VFlash™ Windows® flash utility is a 32-bit Windows application used to safely update (flash) the firmware of the Videotek equipment family. Versions of VFlash prior to 2.00 do not support Ethernet connectivity and newer Videotek products.

SERVICE AND SUPPORT

For service and support, telephone the Harris Customer Service Department at **888-534-8246**. Web support and release notes: http://support.broadcast.harris.com
Email: BCDService@harris.com

ABOUT FLASH UPDATING

The software that runs within the hardware device is called "firmware". The firmware is kept in a type of memory called "flash" memory, named because of the flash ability to be erased "in a flash". The hardware device can be changed or improved by updating the firmware, which requires a specialized set of operations that replace the contents of the flash memory. The process of "flashing" a Videotek device is a carefully coordinated interaction between the device currently running firmware and the Videotek VFlash program running on a PC. Once the device firmware has been replaced, the previously saved settings might not remain in an appropriate format, which is to be used by the new firmware. Therefore, it is important to cold-start the device.

Cold-starting a device replaces all user-settable internal settings with the system default settings. Though cold-starting does overwrite all the existing settings, it also guarantees that all settings (possibly some that did not exist under the older firmware) are compatible with the new firmware requirements.

Some recent Videotek products have the ability to automatically cold-start after a flash update. However, because of differing designs, all Videotek products do not automatically cold-start and must be manually cold-started. Refer to the device operation handbook or service manual for detailed cold-start instructions.

Most new Videotek products keep a copy of the original factory-installed firmware in permanent storage and never overwrite it. VFlash downloads are placed in a separate area of memory. If a VFlash session is successful, the new firmware is loaded at a power-on or reset. If the VFlash session is unsuccessful or canceled by the user, the original factory-installed firmware loads, since the device-memory downloaded contents are suspect. It is possible, therefore, for the device to go backward to an older firmware revision where previous VFlash sessions succeeded but the most recent session failed.

PC REQUIREMENTS

MINIMUM REQUIREMENTS FOR PROGRAM OPERATION

- A PC running Windows XP®

- Pentium-class CPU

- Hard drive space: 50 MB

- RAM: 512 MB free

- Communications:

    - RS-232 serial communications port (COM1, COM2, COM3, COM4) capable of communicating between 4800 and 115200 baud. RS-232 serial cable required.

      OR

    - Ethernet™ 10/100 Base-T connection between the PC and Videotek device. A terminal server can be used as a gateway between Ethernet and a serial only Videotek device. CAT-5 Ethernet cable required.

RECOMMENDED SYSTEM CONFIGURATION

- 1 GHz, or faster, Pentium-class CPU

- RAM: 1 GB or more

- Communications: 16550-type serial port

- Capability: 115200-baud serial capability

USING VFLASH

INSTALLING VFLASH

VFlash must be installed before it can be accessed. The VFlash utility can be obtained from a CD-Rom, website, or from Harris Technical Services. To install VFlash:
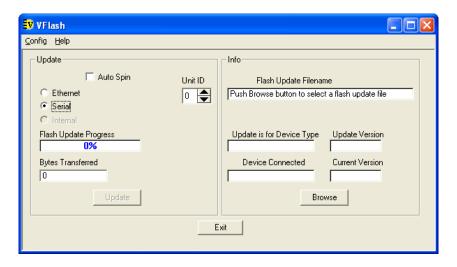
1. Locate and open the VFlash folder.

2. Double-click the SETUP.EXE file and follow the instructions.

CONFIGURING THE PC FOR VFLASH

Once the VFlash program is accessed, the VFlash dialog, shown in **Figure 1**, appears. The VFlash dialog is split into the Update and Info groups.

NOTE: To perform a VFlash update, see page 7.

Figure 1. VFlash screen

The Update Group

The Update group establishes the communications setup and displays the update status.

Unit ID

Some Videotek equipment, especially equipment supporting RS-232 communication, supports user selectable Unit ID values. This allows communication to distinguish between similar units on a common communication path. For these devices, the Unit ID must be entered into VFlash prior to performing an update.

Devices that do not have selectable Unit ID values may still have an internal default Unit ID of 0 or 1. These devices may require entering this Unit ID into VFlash to perform the update. See the device's Operator Handbook for details.

In the event that a device's Unit ID is not known and is not user selectable through the device's user input, an update can be attempted with a Unit ID of 0, and if that fails, with a Unit ID of 1. VFlash can also be configured to automatically search for all Unit IDs of a specific device type by using the "Auto Spin" checkbox. See the next section for details.

Auto Spin

Auto Spin supports sequentially updating multiple hardware devices of the same type (for example, multi-dropped DDM-800s). Select the "Unit ID" ("Slot", for frame-based products). VFlash will sequentially flash every unit, starting at "Unit ID" and continuing until the last (99) unit is flashed. If a Unit ID does not respond after a few seconds, VFlash will move to the next Unit ID.

For example, three DDM-800s are daisy chained on a RS-422 connection. The first unit is set to unit ID 3, the second unit is set to unit ID 6, and the third unit is set to unit ID 10. Check the "Auto Spin" field and select "Unit ID" 3 to flash changes to units 3, 6, and 10. If only the last two units out of the three are to be flashed, check the "Auto Spin" field and select "Unit ID" 6 to VFlash the units 6 and 10. Without Auto Spin selected, modules can be individually updated by selecting each unit's Unit ID, performing the update, and selecting the next Unit ID.

Auto Spin may also be useful in cases where the Unit ID is not known. Some devices that do not have a user selectable Unit ID often have an internal default, either 0 or 1. One way to update such a device is to enter a Unit ID of 0 and attempt an update. If VFlash fails to connect, enter a Unit ID of 1 and attempt an update again. Another way to do this would be to enter a Unit ID of 0 and check "Auto Spin". VFlash will then automatically try Unit ID 0 through 99.

All devices starting with the value entered in "Unit ID" through Unit ID 99 will be updated when "Auto Spin" is checked. After Unit ID 99 is updated, a message will be displayed indicating that VFlash is finished scanning for devices. To terminate scanning before VFlash reaches Unit ID 99, click the "Cancel" button at the bottom of the VFlash GUI.

VFlash Communications

VFlash communicates to the firmware to be updated using a serial connection or an Ethernet connection.

Serial Connection

1. Connect and configure the Videotek device to be updated per the instructions found in the hardware operation handbook or service manual.

2. Connect a serial cable between the PC and the device.

3. Start VFlash and select the SERIAL radio button.

4. Select the Slot (frame-based products)/Unit ID (all other products) of the target device.

5. Select an available communications port from the Config/Comm/Comm Port menu. COM1 is commonly available.

6. Select the baud rate, number of data bits, number of stop bits, and parity that match the target hardware settings using the Config menu.

Ethernet Connection

1. Connect and configure the Videotek device to be updated per the instructions found in the hardware operation handbook or service manual.

2. Confirm that the PC and the device are configured for the same network.

3. Start VFlash and select the ETHERNET radio button.

4. Select the Slot (frame-based products)/Unit ID (all other products) of the target device.

5. Enter the IP address of the destination device into the "IP Address" field. If a Terminal Server is used, enter the Terminal Server IP Address.

6. In the VFlash program, select CONFIG.

7. In the Config menu, select TCP/IP.

8. Once the TCP/IP menu is open, select PORT. The Config Port screen appears.

9. On the Config Port screen, set the port number of the unit to be flashed. The VFlash port number must match the target device port number for VFlash to work. A port number can be found from the I/O and Communications menu for the VTM unit. The default Videotek port number is 3001. Once a valid port is selected, the port is remembered in the registry.

Internal (for use with QuiC only)

NOTE: Before updating the QuiC MA series board, the QuiC Analyzer service must be stopped. To stop the QuiC Analyzer service, go to CONTROL PANEL\ADMINISTRATIVE TOOLS\SERVICES. If the QuiC Analyzer service is running, right-click on QuiC Analyzer in the Services screen and select STOP. The QuiC Analyzer will shortly stop utilizing the board.

The Internal button is enabled when using a PC that contains an MA series board. To VFlash the internal MA board:

1. Select INTERNAL on the VFlash screen.

2. Select the BROWSE button located at the bottom of the Info group.

3. Navigate to the location of the .flu file (on the CD, floppy, or hard drive).

4. Select the .flu file appropriate to the device to be updated. The VFlash program error-checks the file. A check is also made verifying the software compatibility with the device. This could take as long as one minute, depending upon the size of the file and the storage medium.

5. When the error-check succeeds, the UPDATE button is enabled.

6. Press UPDATE to update the internal board with the selected .flu file. The board will only completely update once the PC is rebooted; therefore, reboot the PC.

Flash Update Progress Bar

The "Flash Update Progress" bar displays the percentage of data transferred to the Videotek device. A blue bar indicates VFlash is in the process of updating the firmware. A green bar indicates the update has been successfully completed. A red bar indicates a transfer error occurred.

Bytes Transferred

The "Bytes Transferred" field works in conjunction with the Flash Update Progress bar. As the data transfer percentage increases, the number of bytes increases.

Update

Once the configuration settings are established and a valid .flu file is loaded, the UPDATE button is used to initiate the updating process. If the UPDATE button is grayed out, a valid .flu file, described in the Info group, has not been selected.

The Info Group

The Info group displays the Device Type and the VFlash .flu file name associated with the update. The .flu file contains all information needed to update the firmware.

Flash Update Filename

The "Flash Update Filename" field lists the path for the location of the selected .flu file. To select a .flu file and update the firmware:

1. Select the BROWSE button located at the bottom of the Info group.

2. Navigate to the location of the .flu file (on the CD, floppy, or hard drive).

3. Select the .flu file appropriate to the device to be updated. The VFlash program error-checks the file. A check is also made verifying the software compatibility with the device. This could take as long as one minute, depending upon the size of the file and the storage medium.

4. When the error-check succeeds, the UPDATE button is enabled.

Update is for Device Type

When the .flu file is loaded, the "Update is for Device Type" field displays the target device type. The device type, displayed in the "Update is for Device Type" field, must be compatible with the device type displayed in the "Device Connected" field.

Device Connected

The "Device Connected" field displays the currently connected hardware.

Firmware Versions (Update Version and Current Version)

The "Current Version" field displays the firmware revision of the currently connected hardware. The "Updated Version" field displays the firmware revision of the currently loaded .flu file.

UPDATING FIRMWARE WITH VFLASH

To perform a VFlash update:

1. Run VFlash.

2. Select the Serial, Ethernet, or Internal (QuiC only) connection, as described in Configuring the PC for VFlash on page 3.

3. Select the flash update file (referred to as a ".flu" file) that is compatible with the Videotek hardware to be flashed by pressing the BROWSE button on the main dialog.

4. Once a .flu file is selected, click the OPEN button. VFlash checks the file for errors and compatibility.

5. If the selected file is a valid .flu file and contains no errors, VFlash displays the file target model name and the file version number, and enables the UPDATE button.

6. Begin the flash update process by setting the Videotek hardware to Flash Update mode (if required), as described in the operation handbook or service manual for that unit.

7. Click the VFlash UPDATE button. If the UPDATE button is grayed out, a valid .flu file has not been selected (go back to step 3).

8. VFlash scans for compatible Videotek target hardware.

Note: At 4800 baud, the scan can run for a maximum of 90 seconds. If no target device is detected or if the .flu target device type does not match the device type of the connected equipment, an error message is displayed and the update is aborted. The target device name in the "Update is for Device Type" textbox must match the name in the "Device Connected" textbox.

9. The "Flash Update Progress" bar indicates the transfer progress of the .flu file.

10. If the flash process is interrupted or unsuccessful, a red progress bar is displayed. Restart the process by clicking the UPDATE button.

11. A blue bar indicates VFlash is in the process of updating the firmware. When the Flash update is complete, the blue progress bar changes green when the flash process is successful. If the Flash update fails or is cancelled in progress, the target device will revert to the original factory-programmed firmware revision. If a red progress bar is repeatedly displayed, refer to the Troubleshooting section. Refer to operation handbook or service manual for more information.

12. **For QuiC**: Restart the PC after updating the internal MA series board for the update to be complete. **For all other devices**: A cold start is recommended following all VFlash updates. Some devices will automatically perform a cold start, while other devices will require a manual cold start. Refer to the hardware operation handbook or service manual for cold start procedures.

TROUBLESHOOTING FAQ

Q: When setting the COM port, the error message "Error opening COMn!" pops up, where the "n" in "COMn" is the integer 1 – 4.

A: The selected PC COM port is either in use by another program or does not exist on the PC. Close all other programs, including background programs where possible.

Q: The UPDATE button is grayed out.

A: The UPDATE button is enabled only while a valid, error-free .flu file is loaded into VFlash.

Q: No files are displayed when browsing for .flu files.

A: The File Open dialog, created when the BROWSE button is clicked, filters out all files except .flu files.

Q: After clicking the UPDATE button, the message "Flash update file doesn't match connected device!" appears and no flashing occurred.

A: This message indicates the flash update file is not intended for the connected device.

Q: After clicking the UPDATE button, the error message "Error trying to make Ethernet connection" pops up.

A: Ethernet communications could not be established. Check the IP address in the VFlash "Update" box. Make sure the port number set in VFlash matches the device port number. Check that the Ethernet cable type is appropriate to the devices connected. The two kinds of cable types are:

- Straight-through CAT 5 cable when the PC communicates through a hub/switch
- Crossover CAT 5 cable when the PC communicates directly to the device

Q: After clicking the UPDATE button, the error message "Device is not responding!" appears and no flashing occurred.

A: The message indicates one of the following circumstances:

- The Unit ID (for non frame-based devices) or Slot number (for frame-based devices) is incorrect.
- The device type is incorrect.
- The target device serial port setting does not match the VFlash COMM settings. This mostly likely occurs if the Baud Rate settings were set differently between VFlash and the target device.

Q: After clicking the UPDATE button, the message "Communication Error!" appears and no flashing occurred.

A: The message indicates that the communication is not reliable. Retry the update. If the message keeps appearing, try one of following:

- Use a desktop PC instead of a laptop.

- Use a shielded and short serial cable.

- Switch to an Ethernet connection if not doing so.

Q: The message "Failed to update connected device!" appears during the flash update, and the progress bar changes to red.

A: The message indicates an internal error in the target device. Restart the update by clicking the UPDATE button.

Q: After the progress bar reaches 100%, the message "Device is not responding! The update may have failed!" or "Communication error! The update may have failed!" appears.

A: The message indicates that the target device is not responding or a communication error happened during last communication request. The flash update might be successful or failed. Verify by checking the target device firmware version.

Q: The Auto Spin checkbox is checked. After clicking the Update button, VFlash appears to hang.

A: In order to be tolerant of long network and Internet delays, VFlash retries many times before continuing on to try the next Unit ID/Slot. The long delay might be due to using Auto Spin with the initial Unit ID/Slot location being too far from the first qualifying device (for example, Unit ID/Slot = 2, but the 1st qualifying device is at 14). VFlash must retry and eventually timeout at every Unit ID/Slot number between the starting number and the 1st actually found.

Q: Why is the "Internal" radio button grayed out?

A: The "Internal" radio button is enabled when the PC containing VFlash also contains an internal and updateable MA series board. If the "Internal" radio button is grayed out, check to see if the MA series board is properly inserted into the PC and that it is not being utilized by another application like the QuiC Analyzer. To determine if an application is utilizing the board, go to CONTROL PANEL\ADMINISTRATIVE TOOLS\SERVICES and see if QuiC Analyzer is running. If the QuiC Analyzer service is running, right-click on QuiC Analyzer in the Services screen and select STOP. The QuiC Analyzer will shortly stop utilizing the board, and it can then be updated.

TERMINOLOGY

BAUD RATE

Use the Baud Rate command to set the baud rate for the selected Comm port. The selections are 115200, 57600, 38400, 19200, 9600, and 4800. Use the baud rate that matches the highest baud rate setting of the target hardware. If the PC UART supports a FIFO, enable it (see the PC manual for more information).

COMM PORT

Use the COMM Port command to select the communications port that the PC will use to communicate with the device to be updated. VFlash will issue an error message if communication cannot be established on the selected port.

PARITY

Use the Parity command to select odd, even, or no parity per the RS-232 communications packet.

DATA BITS

Use the Data Bits command to select 7 or 8 data bits per the RS-232 communications packet.

STOP BITS

Use the Stop Bits command to select 1 or 2 stop bits per the RS-232 communications packet.

ETHERNET

Ethernet is a network communication standard using either a coaxial or twisted pair cable. Ethernet uses the IEEE standard 802.3, which is most widely used for of LAN communication. Ethernet typically runs at 10/100 megabits per second, though newer systems use a gigabit transfer rate.

IP Address

Logical address used to identify devices on the Internet or LAN; usually with a format of xxx.xxx.xxx.xxx.

INTERNAL

The Internal selection refers to using VFlash on a PC that internally contains a Videotek product such as the QuiC MA series board.